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THE DISTRIBUTION OF ROTIFERA ON MOUNT DESERT ISLAND. PART VI[1]

NEW BRACHIONIDAE OF THE GENUS *LEPADELLA*[2]

BY FRANK J. MYERS

The rotatorian fauna of Mount Desert Island proved to be very rich in lepadellids, particularly in those species that lurk or live among the leaves of submerged aquatic mosses, especially *Sphagnum*. From such habitats all of the species herein described were collected. Individuals were studied from fully contracted specimens, as the anterior margins, obscured in expanded animals, offer some of the salient characters in the determination of species. No detailed study of the corona or the trophi was made, as they are very uniform throughout the genus. The corona is of the typical family type with the circumapical band suppressed dorsally because of the protective "head-hood." The mastax is malleate.

No observations were made on the sensory pit, situated dorsally on the terminal foot joint. As Harring (1) observed, "this sensory pit has not been demonstrated in all the species, but has been found in all cases where it was possible to obtain a properly oriented view under sufficient magnification." The presence of a caudal ganglion among the rotifers has been demonstrated and it is not unreasonable to suppose that the sensory setae of the pit are connected with the ganglion by a nerve thread, as in other genera.

The lateral antennae, which emerge through simple openings on the dorsal plate near the posterior end, are very uniform throughout the genus; no mention has been made of them in the descriptions, except in one instance which is explained in the text.

The eight new species and two new varieties described in this paper are as follows:

Lepadella bractea	*Lepadella apsicora*
Lepadella venefica	*Lepadella xenica*
Lepadella longiseta	*Lepadella visenda*
Lepadella triba	*Lepadella latusinus* var. *americana*
Lepadella akrobeles	*Lepadella triptera* var. *alata*

[1]The preceding parts of this article appeared in American Museum Novitates as follows: part I (not numbered) in No. 494, Sept. 28, 1931; part II in No. 659, Sept. 15, 1933; part III in No. 660, Sept. 15, 1933; part IV in No. 699, March 10, 1934; part V in No. 700, March 10, 1934.

[2]In this and the following paper of the Mount Desert series, the classification of Remane (Bronn's Tierreich, IV, Abt. II, Buch 1, Rotatorien, Gastrotrichen und Kinorhynchen, pp. 514–517), has been followed. I consider this the most natural and logical classification thus far proposed.

Order **Monogononta**

Family **Brachionidae**

Lepadella bractea, new species

Figures 1, 2, 3

The body is subcircular in outline, deep, strongly convex dorsally and evenly arched; it is prolonged posteriorly into a small pointed projection. There is a prominent dorsal, zigzag keel arising near the anterior margin and extending the full length of the dorsum. The dorsal sinus is broadly U-shaped and has a well-marked stippled collar. The ventral sinus is about twice as deep as the dorsal, and has an inconspicuous line running parallel to it marking the collar limit.

The foot groove is elongate-oval in shape and rather short and narrow; its width is little more than one-half of the length. The terminal foot joint is almost equal to the combined length of the first and second joints. The toes are relatively short and taper gradually to acute points.

Length of lorica, 78μ; foot groove, 21μ; foot, 18μ; terminal foot joint, 9μ; toes, 21μ. Width of lorica, 68μ; anterior points, 25μ. Depth of dorsal sinus, 12μ; ventral sinus, 24μ.

Lepadella bractea was fairly common throughout the island; it has also been collected in Atlantic County, New Jersey, and Vilas County, Wisconsin. The species is easily recognized by the prominent dorsal zigzag keel which gives the impression of being too long for the body and having become compressed longitudinally in order to fit. It is, however, a natural and permanent character and every individual, including those from New Jersey and Wisconsin, was thus provided.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 80.

Lepadella venefica, new species

Figures 4, 5, 6

The body is ovate in outline, fairly deep and evenly arched dorsally. The anterior margin is straight and there is no stippled collar present. The ventral sinus is deep and broadly U-shaped; it is provided with a flaring collar, but no stippling was observed.

The foot groove is wide and parallel-sided. The terminal foot joint is slightly longer than the combined length of the first and second joints. The toes are short, fairly stout and taper regularly to acute tips.

Length of lorica, 57μ; foot groove, 15μ; foot, 15μ; terminal foot joint, 7μ; toes 14μ. Width of lorica, 47μ; anterior points, 20μ. Depth of ventral sinus, 10μ.

Lepadella venefica was evenly distributed throughout the island; it is also common in Atlantic County, New Jersey. This is one of the smaller species, being only slightly larger than *Lepadella triptera* Ehrenberg. Like that species it is so small that it is difficult to find, and is probably more common than the published records indicate. It differs

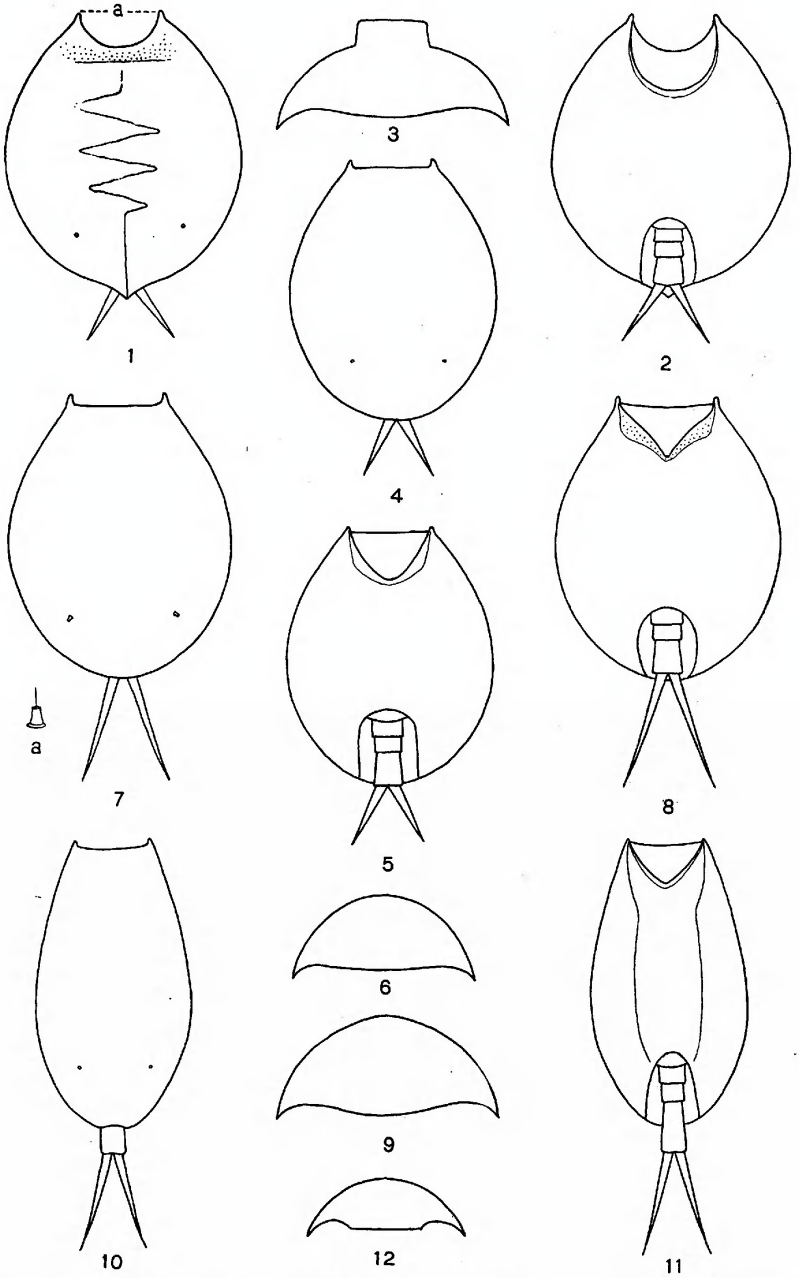

Fig. 1. *Lepadella bractea*, dorsal view. *a*, anterior points. Fig. 2. Ventral view. Fig. 3. Cross section of body. Fig. 4. *Lepadella venefica*, dorsal view. Fig. 5. Ventral view. Fig. 6. Cross section of body. Fig. 7. *Lepadella longiseta*, dorsal view. *a*, lateral antenna. Fig. 8. Ventral view. Fig. 9. Cross section of body. Fig. 10. *Lepadella triba*, dorsal view. Fig. 11. Ventral view. Fig. 12. Cross section of body.

chiefly from the above-mentioned species in the absence of a dorsal keel and in having a straight anterior, dorsal margin.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 382.

Lepadella longiseta, new species

Figures 7, 8, 9

The lorica is ovate in outline, deep and evenly arched dorsally. The dorsal anterior margin is straight and no stippled collar was observed. The ventral sinus is deep and broadly V-shaped; it is provided with a prominent stippled collar, the edges of which are broadly flaring.

The lateral antennae are in the normal position, and the sensory setae emerge from the tips of small tubules.

The foot groove is relatively short and oval in outline. The terminal foot joint is slightly longer than the combined length of the first and second joints. The toes are relatively very long and slender, tapering regularly from the base to very slender tips.

Length of lorica, 78μ; foot groove, 20μ; foot, 18μ; terminal foot joint, 12μ; toes, 38μ. Width of lorica, 65μ; anterior points, 28μ. Depth of ventral sinus, 16μ.

Lepadella longiseta is evidently rare. Two specimens were found in the Witch Hole during the summer of 1930. This species is related to *Lepadella benjamini* Harring, from which it differs in its much smaller size. While the depth of the body is ample, it is not nearly so deep relatively as that of the above-mentioned species, nor do the edges of the lorica overhang.

The lateral antennae are characteristic. The tubules, from the tips of which emerge sensory setae, are quite small, yet they are conspicuous enough to be easily seen, and are the only instance of this kind among the different species of the genus.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 738.

Lepadella triba, new species

Figures 10, 11, 12

The body is very elongate and oval; it is shallow and evenly arched dorsally. The anterior margin is nearly straight and there is no stippled collar. The ventral sinus is broadly V-shaped, with an inconspicuous line running parallel to it marking the collar limit. The venter is provided with a very low, rounded elevation, and in cross section somewhat resembles the lorica of *Euchlanis*. However, there are no lateral sulci, the entire ventral plate being hardened.

The foot groove is flaring. The terminal foot joint is almost equal to one-half the length of the toes. The toes are long and taper regularly to very slender, drawn out tips.

Length of lorica, 80μ; foot groove, 20μ; foot, 26μ; terminal foot joint; 14μ; toes, 32μ. Width of lorica, 45μ; anterior points, 24μ. Depth of ventral sinus, 12μ.

Lepadella triba was found in a pool on Pond Heath, where several specimens were collected during the summer of 1926. It is readily distinguished from the remaining species of the genus by the very elongate lorica and the peculiar *Euchlanis*-like formation of the ventral plate.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 670.

Lepadella akrobeles, new species

Figures 13, 14, 15

The body is elongate and oval in outline; it is shallow and has a low rounded dorsal elevation, widest near the anterior margin, then gradually diminishing in breadth to the posterior margin, where it ends in the form of a low flange. The anterior dorsal margin is very shallow and there are no indications of a stippled collar. The ventral sinus is broadly V-shaped and has an inconspicuous line running parallel to it, which marks the collar limit.

The foot groove is narrow and parallel-sided. The terminal foot joint is slightly longer than the combined length of the first and second joints. The toes are short and rather stout; they taper gradually to very slender tips.

Length of lorica, 90μ; foot groove, 26μ; foot, 22μ; terminal foot joint, 12μ; toes, 24μ. Width of lorica, 68μ; anterior points, 28μ. Depth of ventral sinus, 15μ.

Lepadella akrobeles was collected sparingly in an old, abandoned ice pond near Manset, during the summer of 1930. The peculiar shape of the dorsal elevation is distinctive and distinguishes it from any other species of the genus.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 723.

Lepadella apsicora, new species

Figures 16, 17, 18

The body is oval in outline, shallow, and evenly arched dorsally. The dorsal anterior margin is nearly straight and there is a prominent stippled collar. The ventral sinus is deep and broadly V-shaped; it is also provided with a prominent flaring collar which is stippled throughout.

The foot groove is wide and slightly flaring posteriorly. The terminal foot joint is extremely long, being nearly twice the combined length of the first and second joints; it is twisted, as in *Lepadella cyrtopus* Harring, so that the left toe is almost directly under the right. The toes are strongly asymmetric, the right being nearly twice as long as the left.

Length of lorica, 80μ; foot groove, 21μ; foot, 30μ; terminal foot joint, 20μ; right toe, 30μ; left toe, 14μ. Width of lorica, 65μ; anterior points, 28μ. Depth of ventral sinus, 18μ.

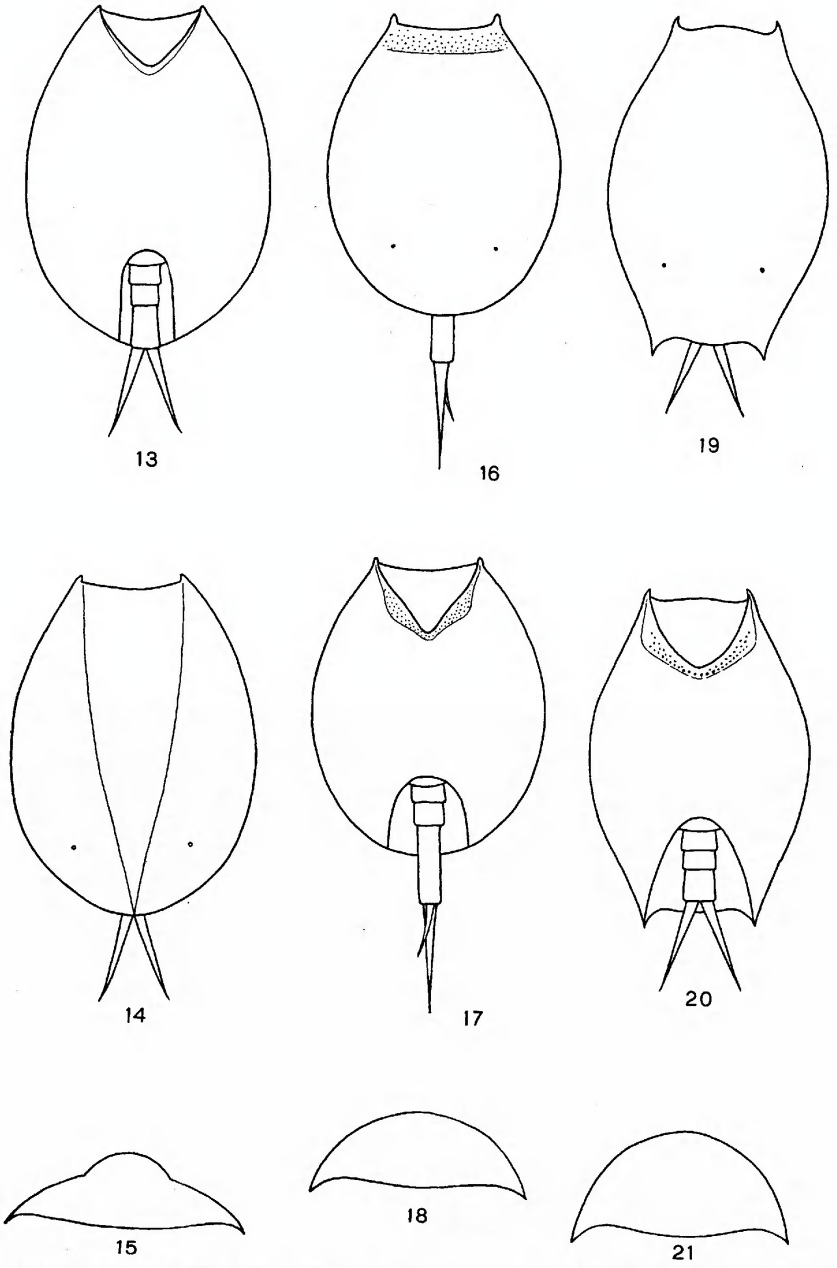

Fig. 13. *Lepadella akrobeles*, ventral view. Fig. 14. Dorsal view. Fig. 15. Cross section of body. Fig. 16. *Lepadella apsicora*, dorsal view. Fig. 17. Ventral view. Fig. 18. Cross section of body. Fig. 19. *Lepadella latusinus* var. *americana*, dorsal view, Fig. 20. Ventral view. Fig. 21. Cross section of body.

Lepadella apsicora was collected sparingly in the Witch Hole and Aunt Bettie Pond during several summers. Its nearest relative is *Lepadella cyrtopus* Harring, from which it differs mainly in the shape of the ventral sinus and in the relatively longer toes. In *Lepadella apsicora* the terminal foot joint is by far the longest, while the second foot joint is the longest in *Lepadella cyrtopus*.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 675.

Lepadella latusinus var. **americana**, new variety

Figures 19, 20, 21

The body is subrhomboidal in outline, and deeply and evenly arched dorsally. The dorsal anterior margin is slightly excavate and the outline is somewhat convex in the middle portion. No dorsal stippled collar was observed. The ventral sinus is deep, broadly V-shaped, and has a prominent flaring collar which is stippled throughout. The posterior margin of the dorsum is wide and flaring, slightly excavate and convex in the middle portion.

The foot groove is deep and widely flaring. The length of the terminal foot joint is nearly equal to the combined length of the first and second joints. The toes are of medium length and gradually taper to very acute tips.

Length of lorica, 90μ; foot groove, 24μ; foot, 19μ; terminal foot joint, 9μ; toes, 24μ. Width of lorica, 63μ; anterior points, 25μ. Depth of ventral sinus, 20μ.

This variety is fairly common on the island, and also in Atlantic County, New Jersey. It is smaller than *Lepadella latusinus* (Hilgendorf)[1] and has relatively shorter toes. The lateral angles of the posterior margin are very acute; they never curve outward and forward as in the exuberant forms of *Lepadella latusinus*. This variety is constant. Specimens from Mount Desert Island and New Jersey were found to agree in all respects.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 761.

Lepadella xenica, new species

Figures 22, 23, 24

The body is pyriform in outline, the greatest width being near the anterior margin, from whence it diminishes gradually, and is prolonged posteriorly as a bluntly pointed projection. The body is shallow. A low elevation arises near the anterior margin of the dorsum, diminishing gradually in width and ending in a low flange. The lateral edges of the lorica overhang slightly. The dorsal sinus is fairly deep and surrounded by a prominent stippled collar, the beads of which are more strongly marked, with one possible exception, than any other known species of the genus. The ventral sinus is somewhat greater in depth than the dorsal and is equally as well marked by a stippled collar.

[1]See Harring, 1916, Proc. U. S. Nat. Mus., LI, p. 542, Pl. XCI, figs. 7–12.

The foot groove is deep, quite narrow anteriorly and flaring posteriorly. The foot is relatively short and the terminal joint is somewhat longer than the combined length of the first and second joints. The toes are very long; they diminish gradually to extremely slender, drawn-out tips.

Length of lorica, 90μ; foot groove, 32μ; foot, 25μ; terminal foot joint, 12μ; toes, 45μ. Width of lorica at widest part, 70μ; anterior points, 35μ. Depth of dorsal sinus, 15μ; ventral sinus, 21μ.

Lepadella xenica was collected in Aunt Bettie Pond during the summer of 1927. It bears some resemblance to *Lepadella hyalina* Smirnov, but differs from that species by having a much deeper dorsal sinus and also in the general shape of the body, particularly the posterior portion. It also somewhat resembles *Lepadella myersi* Edmondson. It differs from that species by being much more shallow dorsoventrally; by having a deep V-shaped anterior dorsal sinus, instead of being straight; by having relatively much longer toes lying side by side, instead of the left being under the right; and by having a rounded posterior projection, instead of being squarely truncate posteriorly. In both species the beaded stippling of the collar is very prominent.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 669.

Lepadella visenda, new species

Figures 25, 26, 27

The body is moderate in depth and is subrhomboidal in outline. The dorsum is evenly arched. The anterior dorsal margin is slightly convex and no stippled collar is present. The ventral sinus is deep and roughly U-shaped; there is an inconspicuous line parallel to it marking the collar limit. The posterior margin of the dorsal plate is flaring and bounded laterally by prominent blunt points.

The foot groove is deep, the anterior half narrow, the posterior half flaring. The terminal foot joint is about equal to the combined length of the first and second joints. The toes are long, the outer edges being straight; the inner edges are expanded at the base, then diminish gradually to form very slender tips.

Length of lorica, 108μ; foot groove, 36μ; foot, 22μ; terminal foot joint, 12μ; toes, 45μ. Width of lorica, 75μ; anterior points, 32μ. Depth of ventral sinus, 28μ.

Lepadella visenda, while not common, is evenly distributed throughout the island. It has also been collected sparingly in Atlantic County, New Jersey. The species bears a certain resemblance to *Lepadella latusinus*, but differs mainly in the very long slender toes, bulbous at the base, and in the blunt lateral projections of the posterior margin.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 668.

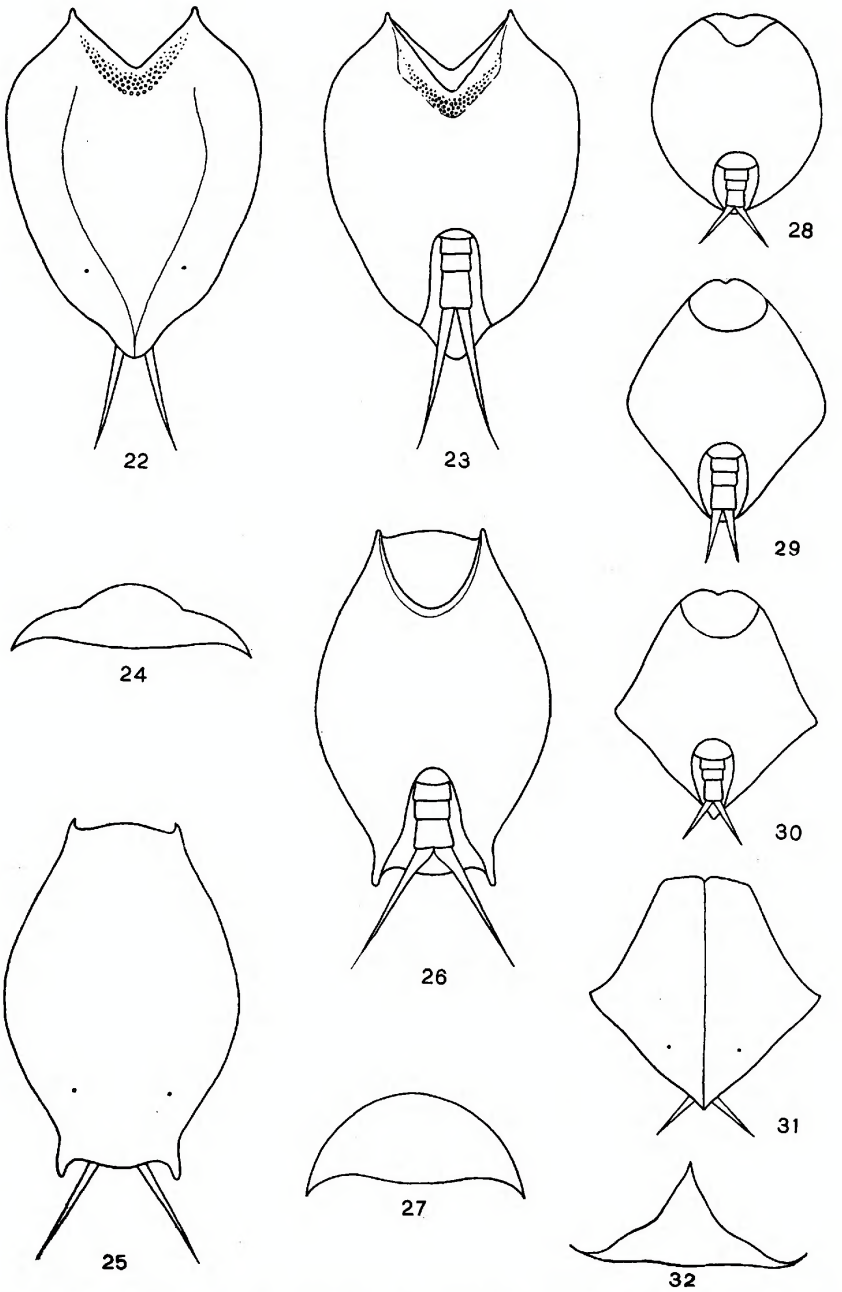

Fig. 22. *Lepadella xenica*, dorsal view. Fig. 23. Ventral view. Fig. 24. Cross section of body. Fig. 25. *Lepadella visenda*, dorsal view. Fig. 26. Ventral view. Fig. 27. Cross section of body. Fig. 28. *Lepadella triptera*, normal form, ventral view. Fig. 29. Mount Desert Island specimen, ventral view. Fig. 30. Karlsruhe specimen, ventral view. Fig. 31. *Lepadella triptera* var. *alata*, dorsal view. Fig. 32. Cross section of body. The figures of this variety are on a smaller scale than those of the other species.

Lepadella triptera var. **alata,** new variety

Figures 28, 29, 30, 31, 32

Lepadella triptera Ehrenberg[1] is evidently quite variable. The normal form is constant in a circumscribed locality, and it is only when material from widely separated locations is brought together and compared that the different forms are seen to intergrade. The extreme of such a series should be accorded varietal rank, and it seems that *Lepadella triptera* var. *alata* is the extreme of the exuberant forms.

Figure 28 shows the normal form. Figures 29, 30, and 31 show the overlapping forms culminating in the winged variety, *alata*. Figures 28 and 29 are reproduced from drawings kindly sent by H. Hauer who collected the specimens near Karlsruhe, Baden.

Measurements of specimen shown in figure 8, material from Duck Brook, Mount Desert Island, are: Length of lorica, 80μ; foot groove, 25μ; foot, 20μ; terminal foot joint, 10μ; toes, 15μ. Width of lorica, 72μ. Depth of ventral sinus, 20μ. Measurements of normal specimen: Length of lorica, 75μ; foot groove, 25μ; foot, 23μ; terminal foot joint, 10μ; toes, 20μ. Width of lorica, 64μ. Depth of ventral sinus, 14μ.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 762.

ADDITIONS TO THE MOUNT DESERT ISLAND FAUNAL LIST

Since the faunal list of rotatorian species of Mount Desert Island was published in the American Museum Novitates (No. 494, September, 1931), the following species have been added: *Collotheca atrochoides* (Wierzejski), Witch Hole, and *Voronkovia mirabilis* Fadeew, from The Tarn.

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(2) Remane, A. 1929–1933. 'Rotatorien, Gastrotrichen und Kinorhynchen.' Bronn's 'Kl. und Ordn. des Tierr.,' IV, Abt. II, Buch 1, Lief. 1–4, pp. 1–576, Figs. 1–332.

[1]See Harring, 1916, Proc. U. S. Nat. Mus., LI, p. 560, Pl. xcv, figs. 1–4.